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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/697,088	10/25/2000	Manabu Kitamura	16869P015200	3076

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EXAMINER
BATES, KEVIN T

ART UNIT	PAPER NUMBER
2155	4

Robert C. Colwell
TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, 8th Floor
San Francisco, CA 94111-3834

DATE MAILED: 11/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/697,088	KITAMURA ET AL.	
	Examiner	Art Unit	
	Kevin Bates	2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 October 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Foreign priority papers have been received on October 25, 2000.

Information Disclosure Statement

The information disclosure statement filed January 25, 2001 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because it is written in a foreign language with no English abstract explaining the relevance of the art. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1, 2, 5, 9, 10, 12, 13, 14, 15, and 17 is rejected under 35 U.S.C. 102(b) as being anticipated by Misinai (5848241).

Regarding claim 1, Misinai discloses a method of sharing data for a computer system having a first computer, a second computer (Column 2, lines 61 – 62), a plurality

of memory units (Column 2, line 65 – Column 3, line 6) and a control unit for controlling the plurality of memory units (Column 3, lines 36 – 43 and Column 2, lines 49 - 50), wherein a data storage subsystem for connection to the first and second computers is provided (Column 2, lines 49 – 52), the method comprising: forming a paired state in which contents of a first memory unit and a second memory unit are maintained the same as the first memory unit stores data used by the first computer (Column 15, line 62 – Column 16 line 3 and Column 11, lines 37 - 45); dissolving the paired state between the first memory unit and the second memory unit (Column 16, lines 43 – 45), and not allowing updating of the first memory unit to be reflected in the second memory unit (Column 15, lines 29 – 33); re-mapping a third memory unit used by the second computer, and the second memory unit with each other; and controlling any access by the second computer to the third memory unit to instead be made to the second memory unit (Column 16, lines 11 – 17 and Column 16, lines 31 – 42, when the second computer tries to read invalid data from its local cache, the local cache accesses the third memory, the medium cache, in order to obtain valid data).

Regarding claim 2, Misinai discloses a step of forming a paired state of the first memory unit and the third memory unit (This is inherent because when the RSF has to know when data has been changed in the first computer, Column 16, lines 10 – 15, and it has to have the changed data available for use of the interested computers, or the 2nd computer, Column 16, lines 40 – 42).

Regarding claim 12, Misinai discloses a method of sharing data for a computer system having a first computer, a second computer (Column 2, lines 61 – 62), a plurality

of memory units (Column 2, line 65 – Column 3, line 6) and a control unit for controlling the plurality of memory units (Column 3, lines 36 – 43 and Column 2, lines 49 - 50), wherein a data storage subsystem for connection to the first and second computers is provided (Column 2, lines 49 – 52), the method comprising: storing a copy of data in the first memory unit as of a certain time in a second memory unit (Column 15, line 62 – Column 16 line 3 and Column 11, lines 37 - 45); recording, in response to changes in the data in the first memory, the changed contents in a third memory unit (This is inherent because when the RSF has to know when data has been changed in the first computer, Column 16, lines 10 – 15, and it has to have the changed data available for use of the interested computers, or the 2nd computer, Column 16, lines 40 – 42); updating the contents of a second memory unit on the basis of the changed contents recorded in the third memory unit (Column 15, line 62 – Column 16 line 3 and Column 11, lines 37 - 45); connecting the second memory unit to the second computer; and causing the second computer to directs its data access to the second memory unit (Column 6, lines 48 – 54).

Regarding claim 13, Misinai discloses that the step of connecting the second memory unit to the second computer further comprises a step of re-mapping a fourth memory unit and the second memory unit connected the second computer (Column 11, lines 10 – 12 and Column 11, lines 22 – 39).

Regarding claim 5, Misiani discloses method of sharing data for a computer system having a first computer, a second computer (Column 2, lines 61 – 62), a plurality of memory units (Column 2, line 65 – Column 3, line 6) and a control unit for controlling

the plurality of memory units (Column 3, lines 36 – 43 and Column 2, lines 49 – 50), and including a data storage subsystem for connection to the first computer and the second computer (Column 2, lines 49 – 52), the method comprising: forming a paired state in which contents of a first memory unit and contents of a second memory unit are controlled to correspond to each other as the first memory unit stores data used by the first computer (Column 15, line 62 – Column 16 line 3 and Column 11, lines 37 – 45); dissolving the paired state between the first memory unit and the second memory unit (Column 16, lines 43 – 45), so as not to allow updating of the first memory unit to be reflected in the second memory unit (Column 15, lines 29 – 33); copying the contents of the second memory unit to a third memory unit; re-mapping a fourth memory unit used by the second computer and the third memory unit with each other; and controlling any access by the second computer to the fourth memory unit to instead be made to the third memory unit (Column 16, lines 11 – 17 and Column 16, lines 31 – 42, when the second computer tries to read invalid data from its local cache, the local cache accesses the third memory, the medium cache, in order to obtain valid data, plus in Column 11, lines 18 – 45 it shows that a map of the information contained in the local cache of the second computer is also kept in the medium cache, the 3rd memory unit, and also kept in the secondary storage device, the 4th memory unit and that the second computer accesses the secondary storage device through the medium cache).

Regarding claim 9, Misinai discloses that at least one of the first through fourth memory units is a logical memory unit recognized by at least one of the first or second computer as a memory unit (Column 13, lines 48 – 51).

Regarding claim 10, Misinai discloses that the step of copying is performed using a third computer separate from the first and the second computers (Column 11, lines 32 – 39).

Regarding claim 14, Misinai discloses a computer system, comprising: a first computer; a second computer (Column 2, lines 61 – 62); and a data storage subsystem connected to the first and the second computer (Column 2, lines 49 – 52), the data storage subsystem including: at least three memory units (Column 2, line 65 – Column 3, line 6), a control unit (Column 3, lines 36 – 43 and Column 2, lines 49 – 50) for writing data written from the first computer to a first memory unit into a second memory unit in duplication (Column 15, line 62 – Column 16 line 3 and Column 11, lines 37 - 45) and for replacing the second memory unit with a third memory unit when the second unit is accessed by the second computer (Column 16, lines 11 – 17 and Column 16, lines 31 – 42, when the second computer tries to read invalid data from its local cache, the local cache accesses the third memory, the medium cache, in order to obtain valid data).

Regarding claim 15, Misinai discloses that the first, the second and the third memory units each comprise logical memory units formed in a physical memory unit of the data storage subsystem (Column 11, lines 32 – 39 and Column 16, lines 3 – 9).

Regarding claim 17, Misinai discloses a data storage subsystem connected to at least one computer (Column 2, lines 61 – 62), the data storage subsystem (Column 2, lines 49 – 52) comprising: a plurality of volumes accessed from the at least one computer (Column 14, lines 47 – 51); and a means to replace instructions from the at least one computer to a logical volume with another logical volume (Column 51 – 55).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3, 4, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Misiani. Regarding claims 3, 4 and 11, Misinai discloses that the data storage subsystem consists of a first data storage system having the first memory unit, and connected to the first computer, and a second data storage subsystem having the second memory unit and the third memory unit, and connected to the second computer (Figure 2, where the first and the second computer, element 3 are connected to the first and second memory units, element 4, and connected to, element 7, the third memory unit element 11), but Misinai doesn't not explicitly indicate that the first computer and the first data storage subsystem are geographically separated from the second data storage subsystem. Misinai teaches that his invention can be enhanced by other network connections (Column 17, line 66 – Column 18, line 4), which would allow the first computer and the second computer connected to the RSF, to be located in different geographical areas. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Misinai's teaching of changing the I/S channel connections to network connections in order to allow networked computers to share a common memory (Column line 66 – Column 18, line 4).

Claims 6, 7, 8, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Misinai in view of Misinai (5758125).

Regarding claim 6, Misinai (5848241), does not explicitly indicate the step of copying the contents of the second memory unit to the third memory unit includes a step of converting a first data format stored in the second memory unit for use by the first computer into a second data format for use by the second computer. Misinai (5758125) teaches a secondary storage controller that copies the contents of the second memory unit to the third memory unit includes a step of converting a first data format stored in the second memory unit for use by the first computer into a second data format for use by the second computer (Column 2, lines 12 – 19). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Misinai's (5758125) storage system controller to allow heterogeneous computer systems to share memory in the storage subsystem (Column 17, lines 60 – 66, Misinai (5848241))

Regarding claim 7, the combined invention of Misinai in view of Misinai from the rejection to claim 6, includes the step of converting data from the first data format to the second data format is based on interfaces among the first computer, the second computer and the data storage subsystem (Column 2, lines 21 – 40, Misinai (5758125)).

Regarding claim 8, the combined invention of Misinai in view of Misinai from the rejection to claim 6, includes the step of converting data comprises converting data between a count key data format and a fixed length block format (Column 7, lines 7 – 16, Misinai (5758125)).

Regarding claim 16, the combined invention of Misinai in view of Misinai from the rejection to claim 6, includes a computer system comprising: a data storage subsystem having a plurality of interfaces (Column 2, lines 21 – 40, Misinai (5758125) and a memory unit in which a plurality of logical volumes are formed (Column 14, lines 48 – 51); a first computer for accessing the data storage subsystem in accordance with count key data format; and second and third computers for accessing the data storage subsystem in accordance with a fixed-length block format (Column 7, lines 7 – 16, Misinai (5758125), wherein: the data storage subsystem writes, into a second logical volume, a duplicate of data written from the first computer to a first logical volume (Column 15, line 62 – Column 16 line 3 and Column 11, lines 37 - 45); the second computer reads the second logical volume in a count key data format and writes to a third logical volume, and the third computer replaces the third logical volume with a fourth logical volume to which it accesses. (Column 16, lines 11 – 17 and Column 16, lines 31 – 42, when the second computer tries to read invalid data from its local cache, the local cache accesses the third memory, the medium cache, in order to obtain valid data, plus in Column 11, lines 18 – 45 it shows that a map of the information contained in the local cache of the second computer is also kept in the medium cache, the 3rd memory unit, and also kept in the secondary storage device, the 4th memory unit and that the second computer accesses the secondary storage device through the medium cache).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U. S. Patent No. 5404482 issued to Stamm.

U. S. Patent No. 5339427 issued to Elko.

U. S. Patent No. 6032216 issued to Schmuck.

U. S. Patent No. 5958078 issued to Yamamoto.

U. S. Patent No. 5568628 issued to Satoh.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Bates whose telephone number is (703) 605-0633. The examiner can normally be reached on 8 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain Alam can be reached on (703) 308-6662. The fax phone number for the organization where this application or proceeding is assigned is (703) 746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3800.

KB
November 7, 2003

HOSAIN ALAM
SUPERVISORY PATENT EXAMINER